

ADDITIONS TO THE VASCULAR FLORA OF NEW MEXICO

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ABSTRACT

Documented here are 25 new state records for the vascular flora of New Mexico. These include 22 not previously reported from the state (*Botrychium hesperium*, *Botrychium lineare*, *Botrychium minganense*, *Botrychium pinnatum*, *Botrychium tunux*, *Bromus squarrosus*, *Carex microglochin* ssp. *microglochin*, *Carex nelsonii*, *Draba streptobrachia*, *Eriogonum arcuatum* var. *xanthum*, *Eriophorum scheuchzeri*, *Festuca hallii*, *Heterotheca pumila*, *Juncus alpinoarticulatus*, *Juncus biglumis*, *Juncus parryi*, *Juncus triglumis* var. *triglumis*, *Kobresia simpliciuscula*, *Listera borealis*, *Polemonium occidentale* var. *occidentale*, *Ptilagrostis porteri*, and *Rosa canina*). The remaining three, *Botrychium multifidum*, *Crataegus chrysocarpa* var. *chrysocarpa*, and *Potentilla nivea*, are confirmations of taxa reported previously without documentation.

RESUMEN

Se documentan aquí 25 nuevas citas para el estado de Nuevo México de flora vascular. Estas incluyen 22 no citadas previamente para el estado (*Botrychium hesperium*, *Botrychium lineare*, *Botrychium minganense*, *Botrychium pinnatum*, *Botrychium tunux*, *Bromus squarrosus*, *Carex microglochin* ssp. *microglochin*, *Carex nelsonii*, *Draba streptobrachia*, *Eriogonum arcuatum* var. *xanthum*, *Eriophorum scheuchzeri*, *Festuca hallii*, *Heterotheca pumila*, *Juncus alpinoarticulatus*, *Juncus biglumis*, *Juncus parryi*, *Juncus triglumis* var. *triglumis*, *Kobresia simpliciuscula*, *Listera borealis*, *Polemonium occidentale* var. *occidentale*, *Ptilagrostis porteri*, y *Rosa canina*). Las tres restantes, *Botrychium multifidum*, *Crataegus chrysocarpa* var. *chrysocarpa*, y *Potentilla nivea*, son confirmaciones de taxa citados previamente sin documentar.

New Mexico ranks fifth in geographical area and fourth in diversity of native vascular plants in the United States (Stein 2002), with Allred (2009) reporting 3,238 species. However, the cataloging of the state's flora remains incomplete. Fourteen years ago, Sivinski and Knight (1996) predicted that several hundred new state records awaited discovery in New Mexico. This has been confirmed by the 417 state records reported in the New Mexico Botanist Newsletters (<http://aces.nmsu.edu/academics/rangescienceherbarium/the-new-mexico-botanist-.html>) from January, 1996 to February, 2010. Documented here are 25 more additions to the state's flora. Most of these were uncovered during a floristic inventory of Vermejo Park Ranch (VPR) from 2007 to 2009 in Colfax and Taos Counties (Legler 2010). The remainder were found during field surveys in New Mexico for *Botrychium* in 2009. All specimens are deposited at the Rocky Mountain Herbarium (RM) with duplicates, where available, at the University of New Mexico Herbarium (UNM). Additional duplicates may be distributed elsewhere. Determination that a taxon is new to New Mexico is based primarily on Allred (2009), and secondarily on BONAP (2010), the USDA Plants Database (NRCS 2010), Flora of North America (FNA 1993+), and regional floras. Identifications for all cited specimens were verified by B.E. Nelson (Herbarium Manager, RM) or by specialists as listed below. Two taxa not included here, *Chionophila jamesii* Benth. and *Platanthera obtusata* (Banks ex Pursh) Lindl. ssp. *obtusata*, were recently reported as new for the state by Peterson (2010) and Heil (2009), respectively. Additional collections of these were obtained during the inventory of VPR. Their label data are available through the RM web site (Hartman et al. 2009).

ASTERACEAE

Heterotheca pumila (Greene) Semple—This endemic of subalpine and alpine habitats in Colorado, Utah, and Wyoming has been erroneously reported for New Mexico (e.g., BONAP 2010). According to Semple (2006), "Reports of occurrence of *H. pumila* from Arizona and New Mexico are based on narrow-leaved plants of *H. fulcrata* var. *amplifolia* with small ovate-lanceolate bracts subtending the heads." The collection cited here is

not *H. fulcrata* var. *amplifolia*. Its morphology matches *H. pumila*, with the leaves oblanceolate throughout and the upper leaves immediately subtending and greatly surpassing the solitary heads.

Voucher specimen: **Taos Co.:** VPR: 1.2 air mi S of Big Costilla Peak and 0.1 air mi E of point 12931, N36.90328, W105.33025, 12,542 ft elev., steep talus, scree, and rock slopes above tree line, 21 Jul 2007, *Legler 6359* (RM).

BRASSICACEAE

Draba streptobrachia R.A. Price—This species was considered endemic to the high mountains of Colorado (Al-Shehbaz et al. 2010). Verified by Ihsan Al-Shehbaz, Missouri Botanical Garden (MO).

Voucher specimen: **Taos Co.:** VPR: unnamed cirque 2.8 air mi SW of State Line Peak, N36.96351, W105.32610, 12,326 ft elev., rock pinnacle on scree slope in the alpine, 18 Jul 2009, *Legler 11463* (RM, UNM).

CYPERACEAE

Carex microglochin Wahlenb. ssp. ***microglochin***—Cochrane (2003) states that this species is “usually rare to occasional in subarctic North America and scattered in the cordilleran region,” where it has been documented as far south as Colorado (BONAP 2010). It is a highly distinctive but easily overlooked sedge of bogs, fens, and other peaty or wet habitats. Verified by Peter Zika, University of Washington (WTU).

Voucher specimens: **Colfax Co.:** VPR: central portion of Elk Meadows, 1 air mi NE of Little Costilla Peak, N36.83619, W105.20389, 10,850 ft elev., open fen, 29 Jul 2007, *Legler 6663* (RM, UNM); VPR: near N end of Elk Meadows, 1.1 air mi NE of Little Costilla Peak, N36.83901, W105.20400, 10,880 ft elev., hummocky fen partly shaded by *Picea*, 19 Aug 2008, *Legler 10938* (RM, UNM).

Carex nelsonii Mack.—This Rocky Mountain endemic ranges from southern Montana south to Colorado and Utah (Murray 2003). Although not previously reported from New Mexico, it has been documented from several bordering counties in Colorado (BONAP 2010). Verified by Zika.

Voucher specimen: **Taos Co.:** VPR: 0.95 air mi S of Big Costilla Peak, N36.90656, W105.32567, 12,234 ft elev., flowing snowmelt spring on gravelly alpine flat, 25 Jul 2007, *Legler 6514* (RM, UNM).

Eriophorum scheuchzeri Hoppe—Ball and Wujek (2003) report this arctic-alpine species as extending south through the Rockies to Colorado and Utah.

Voucher specimen: **Taos Co.:** VPR: unnamed ridge 2.95 air mi due N of Big Costilla Peak, N36.96282, W105.33025, 12,536 ft elev., saturated, peaty, patterned soil below a large, perennial snowfield, 21 Jul 2009, *Legler 11514* (RM, UNM).

Kobresia simpliciuscula (Wahlenb.) Mack.—This circumboreal species extends south through the Rocky Mountains to Colorado (Ball 2003). Verified by Zika.

Voucher specimens: **Colfax Co.:** VPR: central portion of Elk Meadows, 1 air mi NE of Little Costilla Peak, N36.83619, W105.20389, 10,850 ft elev., open fen, 29 Jul 2007, *Legler 6665* (RM, UNM); VPR: near N end of Elk Meadows, 1.1 air mi NE of Little Costilla Peak, N36.83899, W105.20402, 10,880 ft elev., hummocky fen partly shaded by *Picea*, 19 Aug 2008, *Legler 10939* (RM, UNM).

JUNCACEAE

Juncus alpinoarticulatus Chaix—Brooks and Clements (1993) report the distribution of this circumpolar species as extending south in the Rockies to Utah and Colorado. Verified by Zika.

Voucher specimens: **Colfax Co.:** VPR: NW shore of western-most of Bremmer Lakes in Van Bremmer Park, N36.84283, W105.09558, 8,255 ft elev., marshy meadow with alkaline influence, 1 Aug 2007, *Legler 6883* (RM, UNM); VPR: S side of Merrick Lake, 8.2 air mi WNW of Casa Grande, N36.92111, W105.11861, 8,252 ft elev., marshy lake shore, 10 Aug 2007, *Legler 7447* (RM, UNM).

Juncus biglumis L.—The cited collection represents a southern range extension of about 180 miles (290 km) from the nearest populations in Summit County, Colorado (BONAP 2010) for this circumpolar, arctic species. The plants were rare and local at this site.

Voucher specimen: **Taos Co.:** VPR: head of an unnamed cirque 2.3 air mi NNE of Big Costilla Peak, N36.95164, W105.32000, 12,533 ft elev., gravelly seep on a steep, northeast-facing, rocky, alpine slope, 20 Aug 2008, *Legler 10979* (RM, UNM).

Juncus parryi Engelm.—The previously known distribution of this species included all states in or west of the Rockies except for Arizona and New Mexico (Brooks & Clements 1993; BONAP 2010). Although it

was not previously reported for New Mexico, one small, immature specimen at UNM appears to be this species (Santa Fe Co.: Sangre de Cristo Mountains, Puerto Nambe Ridge below Pecos Baldy along Windsor Trail, T18N R11E S2 NW¼, 10,800 ft elev., 17 Jul 1997, R. C. Sivinski 3920). All other specimens were verified by Zika.

Voucher specimens: **Taos Co.:** VPR: ridge line 0.4 air mi SSW of Big Costilla Peak, N36.91531, W105.33058, 12,605 ft elev., rock outcrop in alpine, 25 Jul 2007, Legler 6548 (RM); VPR: slope on SW side of Lake No. 2, 1.3 air mi SSW of State Line Peak, N36.97764, W105.30591, 11,647 ft elev., steep, northeast-facing subalpine slope with scree and talus, 17 Jul 2008, Legler 9835 (RM, UNM).

Juncus triglumis L. var. **triglumis**—Both varieties of this primarily arctic and boreal species occur in North America. They extend south through the Rockies in scattered locations to Colorado for var. *triglumis* and New Mexico for var. *albescens* Lange Fernald (Brooks & Clements 1993; BONAP 2010). An examination of specimens at RM showed many intermediate collections, suggesting the two varieties are weakly differentiated. The most reliable characters appear to be the length of the mature capsules relative to the perianth and the shape of the mature capsule apex. Cited here are two collections clearly assignable to var. *triglumis* (Legler 6699 and 10932) and one intermediate specimen that appears closest to var. *triglumis* (Legler 10986). Verified by Zika.

Voucher specimens: **Colfax Co.:** VPR: near N end of Elk Meadows, 1.1 air mi NE of Little Costilla Peak, N36.83944, W105.20361, 10,840 ft elev., hummocky fen partly shaded by *Picea*, 29 Jul 2007, Legler 6699 (RM, UNM); same site as previous, 19 Aug 2008, Legler 10932 (RM, UNM). **Taos Co.:** VPR: base of a large unnamed cirque 2.5 air mi NNE of Big Costilla Peak, N36.95589, W105.31546, 11,962 ft elev., moist, subalpine meadows around seeps, 20 Aug 2008, Legler 10986 (RM, UNM).

OPHIOGLOSSACEAE

Botrychium hesperium (Maxon & R.T. Clausen) W.H. Wagner & Lellinger—This moonwort is broadly distributed in western North America and extends south to Arizona and Colorado (Farrar 2005). It is among the more common moonworts in Colorado (S. Popovich, pers. comm.). I made 40 collections of this species in New Mexico between 2007 and 2009. Twelve of these are cited here to illustrate its distribution in the state. Data for the remaining vouchers are available through the RM web site (Hartman et al. 2009). Populations at several sites numbered in the hundreds of plants. These collections suggest the species is one of the most common moonworts in New Mexico and the lack of prior documentation may be a consequence of its cryptic nature. All collections were verified by Dr. Donald Farrar, Iowa State University (ISC), including several by enzyme electrophoresis.

Voucher specimens: **Colfax Co.:** VPR: top of "Dead Horse Hill" Mesa, 2.1 air mi NNE of Underwood Lakes and 0.3 air mi S of Colorado, N36.99001, W105.20479, 10,926 ft elev., old clear-cut, gravelly soil, with *Festuca arizonica* and young *Picea*, 7 Aug 2008, Legler 10428 (RM, UNM); Carson National Forest, Valle Vidal Unit: near end of Forest Service Road 1913 in headwaters of Greenwood Canyon, 1.3 air mi NE of Black Mountain, N36.71162, W105.24136, 10,207 ft elev., gravelly road shoulder with *Picea* saplings, 27 Jul 2009, Legler 11543 (RM); Colin Neblett State Wildlife Area: at junction of main access road and an abandoned side road 0.45 air mi SW of Green Mountain, N36.55631, W105.20277, 10,706 ft elev., bed of old logging road among dry *Picea* forest, 30 Jul 2009, Legler 11566 (RM, UNM). **Rio Arriba Co.:** Santa Fe National Forest, San Pedro Parks Wilderness: along Highline Trail (#385) on N side of an unnamed tributary to Oso Creek 0.5 air mi SE of Vega del Oso, N36.10200, W106.79870, 10,289 ft elev., small subalpine meadow among *Picea* forest, 5 Aug 2009, Legler 11592 (RM); Carson National Forest, Cruces Basin Wilderness: around a small unnamed pond 0.2 air mi NE of Brazos Ridge Overlook along Forest Service Road 87, N36.92739, W106.35326, 10,581 ft elev., rocky, hummocky, subalpine meadows with scattered *Picea*, 7 Aug 2009, Legler 11614 (RM, UNM). **Santa Fe Co.:** Santa Fe National Forest, Santa Fe Ski Area: at junction of Desafio and Spruce Bowl runs, 0.9 air mi SE of Aspen Peak, N35.79049, W105.80018, 10,558 ft elev., north-facing ski slope with lush herbaceous cover, 31 Jul 2009, Legler 11572 (RM, UNM). **Taos Co.:** VPR: NE shore of Beaver Lake, 3.34 air mi NE of Big Costilla Peak, N36.93497, W105.27167, 10,086 ft elev., rocky soil several feet above water line, 15 Aug 2007, Legler 7715 (RM); VPR: logging road on N side of an unnamed tributary of Casias Creek, 1.1 air mi SE of Lake No. 2, N36.96544, W105.29011, 10,503 ft elev., gravel patch on side of road, 12 Jul 2008, Legler 9639 (RM, UNM); VPR: near head of an unnamed stream 0.8 air mi S of Suntisteven Creek and 2.1 air mi WNW of Costilla Reservoir dam, N36.88367, W105.31783, 10,988 ft elev., old clear-cut with young *Picea*, gravelly soil, 22 Jul 2008, Legler 9997 (RM, UNM); VPR: logging road 0.2 air mi NW of summit of Vermejo Peak, N36.89407, W105.21842, 11,050 ft elev., mesic, gravel road bed, 2 Aug 2008, Legler 10282 (RM); Rio Costilla Park: on N side of Latir Creek 0.3 air mi NE of the lowest lake in Latir Lakes chain, N36.80662, W105.44449, 10,899 ft elev., mesic, gravelly, subalpine meadow adjacent to *Picea* forest, 27 Jul 2009, Legler 11549 (RM, UNM); Carson National Forest, Wheeler Peak Wilderness: along trail 0.2 air mi N of outlet of Horseshoe Lake, N36.56731, W105.40456, 11,553 ft elev., steep, gravelly, subalpine meadow, 28 Jul 2009, Legler 11553 (RM, UNM).

Botrychium lineare W.H. Wagner—Slender moonwort was previously considered for listing under the Endangered Species Act (USFWS 2001). It is widely scattered throughout boreal and western North America, usually in very small populations (Farrar 2005), but is now known to be more common than previously thought in Colorado (S. Popovich, pers. comm.). The plants cited here fit the unpublished *B. 'furcatum'*, currently considered indistinct from *B. lineare* (Farrar, pers. comm.). Forty-eight plants were counted at this site. Verified by Farrar using enzyme electrophoresis.

Voucher specimen: **Taos Co.:** Carson National Forest, Wheeler Peak Wilderness: above trail 0.23 air mi NW of outlet of Horseshoe Lake, N36.56778, W105.40586, 11,851 ft elev., steep, loose scree with *Senecio atratus* and *Cystopteris fragilis*, 28 Jul 2009, Legler 11556 (RM, UNM).

Botrychium minganense Vict.—This widely distributed moonwort extends south throughout the western cordillera to California, Arizona, and Colorado (Farrar 2005). As with *B. hesperium*, it is among the more common moonwort species in adjacent Colorado (Popovich, pers. comm.) and has been overlooked in New Mexico. Forty-eight collections of this species were obtained in New Mexico. Thirteen of these are cited here to illustrate its distribution in the state. Data for the remaining vouchers are available through the RM web site (Hartman et al. 2009). Populations at several sites numbered in the hundreds of plants. All collections were verified by Farrar, including several by enzyme electrophoresis.

Voucher specimens: **Cibola Co.:** Cibola National Forest: 0.6 air mi SE of Mount Taylor, N35.23557, W107.59865, 10,253 ft elev., old clear-cut and subalpine spruce-fir forest with grassy openings, 3 Aug 2009, Legler 11590 (RM, UNM). **Colfax Co.:** VPR: top of "Dead Horse Hill" Mesa, 2.1 air mi NNE of Underwood Lakes, N36.98972, W105.20347, 10,926 ft elev., old clear-cut, gravelly soil, with *Festuca arizonica* and young *Picea*, 7 Aug 2008, Legler 10421 (RM, UNM); Carson National Forest, Valle Vidal Unit: near end of Forest Service Road 1913 in headwaters of Greenwood Canyon, N36.71461, W105.23148, 10,198 ft elev., gravelly road bank in spruce-fir forest, 27 Jul 2009, Legler 11544 (RM); Colin Neblett State Wildlife Area: along a short spur road 0.25 air mi NW of Green Mountain, N36.56281, W105.19587, 11,014 ft elev., gravelly road bed shaded by conifers, 30 Jul 2009, Legler 11564 (RM). **Lincoln Co.:** Lincoln National Forest, Ski Apache: on Rover Run just above where ski lift cuts across run, N33.39387, W105.80941, 11,165 ft elev., north-facing slope with cobbly soil, herbaceous cover, 2 Aug 2009, Legler 11589 (RM, UNM). **Rio Arriba Co.:** Santa Fe National Forest, San Pedro Parks Wilderness: SW margins of Vega del Oso at head of Oso Creek, N36.10706, W106.80864, 10,414 ft elev., gravelly subalpine meadows among *Picea* forest, 5 Aug 2009, Legler 11597 (RM); Carson National Forest, Cruces Basin Wilderness: 0.2 air mi NE of Brazos Ridge Overlook off Forest Service Road 87, N36.92739, W106.35326, 10,581 ft elev., rocky, hummocky subalpine meadows with scattered *Picea*, 7 Aug 2009, Legler 11613 (RM). **Santa Fe Co.:** Santa Fe National Forest, Santa Fe Ski Area: on Thunderbird run, 0.1 mi north of Point 11182, N35.78730, W105.79616, 11,034 ft elev., mesic ski run with herbaceous cover, 31 Jul 2009, Legler 11575 (RM, UNM). **Taos Co.:** VPR: logging road on S side of an unnamed tributary of Casias Creek 0.9 air mi S of Lake No. 2, N36.96616, W105.30215, 10,827 ft elev., gravelly soil on road shoulder, 12 Jul 2008, Legler 9646 (RM, UNM); VPR: logged area 0.8 air mi S of Suntisteven Creek and 2.1 air mi WNW of Costilla Reservoir dam, N36.88336, W105.31730, 10,988 ft elev., old clear-cut with young *Picea*, gravelly soil, 22 Jul 2008, Legler 9994 (RM); VPR: 0.3 air mi NW of summit of Vermejo Peak, N36.89618, W105.21704, 10,863 ft elev., old clear-cut on north-facing slope, 2 Aug 2008, Legler 10239 (RM, UNM); Rio Costilla Park: Latir Lakes, camping area on NE shore of second lake, N36.80327, W105.45145, 11,142 ft elev., meadowy openings among subalpine spruce-fir forest, 27 Jul 2009, Legler 11547 (RM); Carson National Forest, Taos Ski Area: Papa Bear Run, 0.9 air mi NNE of Kachina Peak (Point 12481), N36.57459, W105.44370, 1,683 ft elev., gravelly margins of small stream, 6 Aug 2009, Legler 11609 (RM, UNM).

Botrychium multifidum (S.G. Gmel.) Trevis.—This widely distributed grapefern was reported from New Mexico without documentation (Martin & Hutchins 1981) as stated by Allred (2009): "Reported as expected by M&H; awaits verification." Two vouchers, verified by Farrar based on morphology, are provided here.

Voucher specimens: **Taos Co.:** VPR: S shore of third lake (from bottom) in Seven Lakes chain, 3.3 air mi E of Big Costilla Peak, N36.91100, W105.26964, 9,813 ft elev., old, drained, man-made lake bed with gravelly bottom and seeps, easily more than 1,000 plants here, 18 Aug 2007, Legler 7915 (RM, UNM); VPR: old beaver pond in Long Canyon at W end of Seven Lakes chain, 2.6 air mi E of Big Costilla Peak, N36.91522, W105.28115, 10,056 ft elev., gravelly soil on pond margin, 16 Aug 2008, Legler 10821 (RM, UNM).

Botrychium pinnatum H. St. John—The previously known distribution of this moonwort extended south from Alaska through the Pacific Northwest to Colorado (Farrar 2005). All collections cited here were verified by Farrar, including several by enzyme electrophoresis. At the Santa Fe Ski Area the population size was estimated at about 1,000 plants.

Voucher specimens: **Colfax Co.:** VPR: N side of an unnamed ridge 2.0 air mi due N of Underwood Lakes, N36.99070, W105.21377, 10,886 ft elev., old logging road among *Picea* forest, 11 Aug 2008, *Legler 10572* (RM). **Santa Fe Co.:** Santa Fe National Forest, Santa Fe Ski Area: Open Slope Run, 0.3 air mi NE of Point 11182, N35.78845, W105.79284, 11,011 ft elev., north-facing ski run with gravelly soil, herbaceous cover, 31 Jul 2009, *Legler 11582* (RM, UNM); Santa Fe National Forest, Santa Fe Ski Area: Little Alpine Run, 0.9 air mi SE of Lake Peak, N35.79287, W105.78688, 11,126 ft elev., rocky slope with herbaceous cover, 31 Jul 2009, *Legler 11587* (RM, UNM). **Taos Co.:** VPR: old logging road on SW side of Casias Creek 1.3 air mi SE of Lake No. 2, N36.96077, W105.28845, 10,473 ft elev., moist gravelly soil with young *Picea*, 12 Jul 2008, *Legler 9637* (RM); VPR: S side of an unnamed stream 0.9 air mi SSE of Lake No. 2, N36.96513, W105.29307, 10,614 ft elev., old clear-cut with rocky soil and *Picea* saplings, 17 Jul 2008, *Legler 9869* (RM); VPR: near head of an unnamed stream 0.8 air mi S of Suntisteven Creek and 2.15 air mi WNW of Costilla Reservoir dam, N36.88483, W105.31678, 11,034 ft elev., old clear-cut with gravelly soil and young *Picea*, 22 Jul 2009, *Legler 11524* (RM); VPR: junction of two old logging roads 1.9 air mi NW of Beaver Lakes, N36.95765, W105.28992, 10,762 ft elev., badly eroded road bed with *Picea* saplings, 19 Jul 2009, *Legler 11638* (RM).

Botrychium tunux Stensvold & Farrar—When described as new to science in 2002 (Stensvold et al.), this moonwort was assumed to be restricted to sandy, coastal beaches and alpine scree slopes in southeastern Alaska and adjacent Canada (Farrar 2005). It has since been documented from scattered locations throughout the western United States, including Colorado (Farrar, pers. comm.). In Colorado it is often found in alpine scree with *Senecio atratus* and *Cystopteris fragilis*, often in association with *B. lineare*. At the locality cited here, 35 plants were counted in just such a habitat. Verified by Farrar using enzyme electrophoresis.

Voucher specimen: **Taos Co.:** Carson National Forest, Wheeler Peak Wilderness: above trail 0.23 air mi NW of outlet of Horseshoe Lake, N36.56778, W105.40586, 11,851 ft elev., steep, loose scree with *Senecio atratus* and *Cystopteris fragilis*, 28 Jul 2009, *Legler 11555* (RM, UNM).

ORCHIDACEAE

Listera borealis Morong—The collections cited here extend the known range of this primarily boreal species south by about 160 miles (260 km) from the nearest populations in Chaffee and Gunnison Counties, Colorado (CONHP 2010). Plants were local and uncommon at both sites.

Voucher specimen: **Taos Co.:** VPR: unnamed stream 0.2 mi E of lower Twin Lake and 2.1 air mi ENE of Costilla Reservoir dam, N36.88364, W105.24444, 9,767 ft elev., cold, wet stream bottom under dense *Picea* forest, with mossy soil, 30 Jun 2007, *Legler 5324* (RM); Carson National Forest: E bank of East Fork Red River ca. 250 ft. upstream from where Trail #56 crosses river, N36.56988, W105.38226, 10,611 ft elev., mossy banks of a small, flowing stream in cool, shady *Picea* forest, 29 Jul 2009, *Legler 11558* (RM).

POACEAE

Bromus squarrosus L.—This exotic grass is well established in the northern United States and adjacent Canada (Pavlick & Anderton 2007).

Voucher specimen: **Colfax Co.:** VPR: 0.4 air mi SE of junction of Lookout Canyon and Cerrososo Canyon, 18 air mi NNW of Cimarron, N36.76436, W105.00983, 8,055 ft elev., shoulder of dirt road leading to oil well pad, 23 Jul 2007, *Legler 6432* (RM, UNM).

Festuca hallii (Vasey) Piper—The large spikelets of this grass, with the glumes equaling or slightly exceeding the lemmas, are distinctive. The species is primarily distributed in the northern Great Plains of Canada and the United States (Darbyshire & Pavlick 2007) but extends south in Colorado nearly to the New Mexico border (Snow 2008; Hartman et al. 2009; BONAP 2010).

Voucher specimen: **Taos Co.:** VPR: slope above east side of Costilla Creek ½ air mi SE of Lake No. 1, N36.97567, W105.24981, 10,240 ft elev., meadows bordered by *Populus tremuloides*, 28 Jun 2007, *Legler 5179* (RM, UNM).

Ptilagrostis porteri (Rydb.) W.A. Weber—Previously thought to be endemic to central Colorado, this species was considered for listing under the Endangered Species Act (USFWS 2005). The collection cited here represents a southern range extension of about 150 miles (240 km) from the nearest populations in El Paso County. Only a few dense clumps were observed at the location cited here. The plants were confined to the tops of mossy hummocks in a habitat similar to known occurrences in Colorado.

Voucher specimen: **Colfax Co.:** VPR: near N end of Elk Meadows, 1.1 air mi NE of Little Costilla Peak, N36.83899, W105.20400, 10,880 ft elev., hummocky fen partly shaded by *Picea*, 19 Aug 2008, *Legler 10940* (RM, UNM).

POLEMONIACEAE

Polemonium occidentale Greene var. **occidentale**—This widespread species has been documented from all states in and west of the Rockies except for New Mexico (BONAP 2010). While examining specimens at UNM, two collections of this species were found from Rio Arriba County (cited below) that had been misidentified. Additional collections from recent floristic inventories, also cited below, along with observations in the field, suggest the species is not uncommon in wet mountain meadows in the northern portion of the state.

Voucher specimens: **Colfax Co.:** VPR: headwaters of Gold Creek 1.4 air mi NW of Underwood Lakes, N36.97653, W105.22569, 11,129 ft elev., wet meadow, 18 Jul 2007, *Legler 6249* (RM, UNM); VPR: N end of Elk Meadows, 1.1 air mi NE of Little Costilla Peak, N36.83944, W105.20361, 10,840 ft elev., marshy meadow with numerous, shallow, water filled depressions and mossy tussocks, 29 Jul 2007, *Legler 6697* (RM, UNM). **Rio Arriba Co.:** Cumbres Range, wet meadows, 7 Aug 1951, *Ira M. Clark s.n.* (UNM); San Gregorio Lake, mixed collection with *P. foliosissimum*, 11 Jul 1962, *J.S. Findley s.n.* (UNM). **Taos Co.:** VPR: 0.16 mi downstream from the outlet of lower Twin Lake, 2.1 air mi ENE of Costilla Reservoir dam, N36.88583, W105.24500, 9,764 ft elev., sloping fen with stunted *Picea*, 30 Jun 2007, *Legler 5322* (RM, UNM); VPR: along Casias Creek where road to Seven Lakes crosses creek, 1.3 air mi N of north end of Costilla Reservoir, N36.91342, W105.26114, 9,577 ft elev., wet meadows, 27 Jul 2007, *Legler 6610* (RM, UNM); VPR: unnamed stream 1.6 air mi WNW of Costilla Creek Reservoir, N36.87927, W105.30833, 10,617 ft elev., sloping wet meadow in spruce-fir forest, 22 Jul 2008, *Legler 10013* (RM); VPR: between the third and fourth lakes in Seven Lakes chain in Long Canyon, 3.2 air mi ESE of Big Costilla Peak, N36.91264, W105.27038, 9,827 ft elev., wet meadow with stunted *Picea*, 19 Jul 2009, *Legler 11469* (RM); Rancho del Rio Grande Grant: along Rito de la Olla and lower Frijoles Creek, ca. $\frac{3}{4}$ –1 air mi SW of Puertocito, N36.2765, W105.4119, 9,475 ft elev., moist to wet meadows and stream bank, 31 Jul 2005, *B.E. Nelson 65934* (RM).

POLYGONACEAE

Eriogonum arcuatum Greene var. **xanthum** (Small) Reveal—This showy, mat-forming buckwheat was previously considered endemic to the mountains of Colorado (Reveal 2005).

Voucher specimens: **Taos Co.:** VPR: in talus bowl 1.8 air mi S of Big Costilla Peak, N36.89408, W105.33172, 12,129 ft elev., northeast-facing, rocky, alpine slope, 19 Jul 2007, *Legler 6310* (RM, UNM); VPR: 1.2 air mi S of Big Costilla Peak and 0.1 air mi E of point 12,931, N36.90328, W105.33025, 12,542 ft elev., steep talus, scree, and rock slopes, 21 Jul 2007, *Legler 6367* (RM); VPR: 0.25 air mi NE of Big Costilla Peak, N36.92347, W105.32619, 12,172 ft elev., rocky, alpine slope, 18 Jun 2008, *Legler 8882* (RM, UNM); VPR: between 3rd and 4th lakes at Casias Lakes, 1.6 air mi S of Big Costilla Peak, N36.89698, W105.32964, 11,900 ft elev., dry, gravelly, subalpine meadow, 30 Jul 2008, *Legler 10094* (RM).

ROSACEAE

Crataegus chrysocarpa Ashe var. **chrysocarpa**—Fernald (1950) included New Mexico in the distribution of this widespread taxon, but without documentation. More recent references, particularly those of Phipps (1998), Phipps and O'Kennon (2004), and Allred (2009), omit it from the state. Three collections are provided here to confirm its presence.

Voucher specimens: **Colfax Co.:** VPR: Taber Morey Canyon 0.8 air mi W of Jones Canyon and 12 air mi WNW of Raton, N36.95049, W104.64311, 7,508 ft elev., base of rocky slope adjacent to a small, barely flowing stream, 2 Jun 2008, *Legler 8350* (RM, UNM); VPR: head of McWilliams Canyon, 13.4 air mi WNW of Raton, N36.96043, W104.66972, 7,767 ft elev., dry canyon bottom, 3 Jun 2008, *Legler 8384* (RM); VPR: McWilliams Canyon 1.8 air mi SE of Long Canyon and 14.3 air mi WNW of Raton, N36.97458, W104.68166, 7,354 ft elev., canyon bottom with barely flowing stream, 3 Jun 2008, *Legler 8387* (RM, UNM).

Potentilla nivea L.—The distribution of this circumpolar, arctic-alpine species extends south through the Rockies to Utah and Colorado (Hultén 1968; BONAP 2010). It had been reported for New Mexico only by Welsh (1982) and Welsh et al. (2003), but in both cases without documentation. Peterson (2000) questioned Welsh's report, and the species was not attributed to the state by Allred (2009). The collection cited here confirms its presence in the state.

Voucher specimen: **Taos Co.:** VPR: unnamed cirque 2.8 air mi SW of State Line Peak, N36.96413, W105.32749, 12,326 ft elev., steep, north-facing, alpine scree slope, 18 Jul 2009, *Legler 11461* (RM, UNM).

Rosa canina L.—A single large shrub was found at the site listed here. There is no evidence to suggest this shrub was planted. The species should be considered a waif in New Mexico until corroborated with further collections.

Voucher specimen: **Colfax Co.:** VPR: Left Fork York Canyon, 1.1 air mi NW of its junction with Right Fork York Canyon, N36.92083, W104.95639, 7,934 ft elev., rocky berm along a small stream on edge of revegetated coal mine spoils, bordered by forest of *Pseudotsuga menziesii* and *Abies concolor*, 8 Aug 2007, Legler 7318 (RM, UNM).

ACKNOWLEDGMENTS

The author thanks Vermejo Park Ranch, the New Mexico Native Plant Society, and the University of Wyoming for supporting field work. Herbarium research was conducted at RM, UNM, and the University of Northern Colorado Herbarium (GREE). The following individuals provided assistance and comments: Kelly Allred, Donald Farrar, Ronald L. Hartman, Ken Heil, B.E. Nelson, Steve Popovich, Bob Sivinski, and Neil Snow. I also thank Jill Larson for allowing me to cite a specimen of *Polemonium occidentale* collected during her floristic inventory of the Carson National Forest.

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